

IN THE CLAIMS

1. (Previously Presented) A spinal prosthesis system, comprising:

a caudal prosthesis having a pair of pedicle anchors for coupling to an inferior vertebral body, the caudal prosthesis including an artificial caudal facet joint structure comprising a pair of caudal bearing surfaces;

a cephalad prosthesis having a second pair of pedicle anchors for coupling to a superior vertebral body, the cephalad prosthesis including an artificial cephalad facet joint structure comprising a pair of cephalad bearing surfaces; and

an artificial facet joint formed between the adjoining vertebral bodies by articulation of the artificial caudal facet joint structure with the artificial cephalad facet joint structure.

2.-26. (Canceled)

27. (Currently Amended) A prosthesis system according to claim 1 wherein at least one of the artificial facet joint structures is made of biocompatible material ~~at least one selected prosthetic material~~.

28. (Currently Amended) A prosthesis system according to claim 27 wherein the ~~selected prosthetic material includes~~ is selected from one of the following polyethylene, rubber, tantalum, titanium, chrome cobalt, surgical steel, bony in-growth material, ceramic, artificial bone, or a combination thereof.

29. (Canceled)

30. (Previously Presented) A prosthesis system according to claim 1 wherein the pedicle anchors include a screw installed within the vertebral body at or near a pedicle.

31. (Previously Presented) A prosthesis system according to claim 1 wherein the pedicle anchors include a stem installed within the vertebral body at or near a pedicle.

32. (Previously Presented) A prosthesis system according to claim 1 wherein the pedicle anchors include means for resisting rotation after installation in the vertebral body.

33. (Original) A prosthesis system according to claim 1 wherein at least one of the caudal and cephalad prosthesis is fixed to the vertebral body by an adhesive or cement.

34. (Original) A prosthesis system according to claim 1 wherein at least one of the caudal and cephalad prosthesis includes a bony in-growth material.

35. -38. (Canceled)

39. (Withdrawn) A method of replacing a natural facet joint between adjoining inferior and superior vertebral bodies using the prosthesis system defined in claim 1 to provide improved support for the spinal column, the method comprising the steps of

- (i) removing from the inferior vertebral body all or a portion of a caudal portion of the natural facet joint,
- (ii) removing from the superior vertebral body all or a portion of a cephalad portion of the natural facet joint,
- (iii) fixing the caudal prosthesis as defined in claim 1 to the inferior vertebral body to replace the removed caudal portion of the natural facet joint with the artificial caudal facet joint structure,
- (iv) fixing the cephalad prosthesis as defined in claim 1 to the superior vertebral body to replace the removed cephalad portion of the natural facet joint with the artificial cephalad facet joint structure, and
- (v) affecting articulation between the artificial caudal facet joint structure and the artificial cephalad facet joint structure to create an artificial facet joint between the adjoining vertebral bodies.

40. (Withdrawn) A method according to claim 39 further including a step of removing at least some of the lamina from the inferior vertebral body.

41. (Withdrawn) A method according to claim 39 further including a step of removing at least part of a mamillary process from the inferior vertebral body.

42. (Withdrawn) A method according to claim 39 further including a step of removing at least part of a transverse process from the inferior vertebral body.

43. (Withdrawn) A method according to claim 39 further including a step of removing at least part of a pedicle from the inferior vertebral body.

44. (Withdrawn) A method according to claim 39 further including a step of removing at least part of an accessory process from the superior vertebral body.

45. (Withdrawn) A method according to claim 39 further including a step of removing at least part of a transverse process from the superior vertebral body.

46. (Withdrawn) A method according to claim 39 further including a step of removing at least part of a pedicle from the superior vertebral body.